each country's department of health. Countries were reviewed under a range of headings including: current delivery models in place, institutions responsible for delivery and organisation of reimbursement system, incentive structures in place, basic bundle of health care covered, additional options for coverage, disease-specific resource use and health outcomes, government contribution to cost of health care and overall health care expenditure. **RESULTS:** Generally, the basic bundle of health care across countries with Universal entitlement ensures comprehensive medical care for everyone including GP services, access to tertiary care, post-natal care and medications. Co-payments, excess payments and retention fees apply in some countries dependent upon the Universal delivery model in place. **CONCLUSIONS:** This review presents characteristics of Universal health care delivery systems across Europe. Basic bundles of health care provision and organisation of reimbursement across delivery models have been outlined, thus providing further clarity on the characteristics of and variation across Universal health care models.

PHP81
NATIONAL RARE DISEASE STRATEGIES: THE CURRENT STATE FOR ORPHAN DRUG MARKET ACCESS IN EUROPEAN UNION (EU) MEMBER STATES
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OBJECTIVES: By 2013 all European Union (EU) member states were recommended to elaborate and adopt a national strategy for rare diseases. This study provides insights into the national rare disease strategies, in particular about the status of the programmes, recent developments, and the congruencies and differences between the programmes regarding market access. **METHODS:** A literature and Internet search was performed to identify national strategies for rare diseases published by EU member states. Both policies and recent orphan drug introductions have been analysed to compare the rare disease strategies. **RESULTS:** All member states had a variety of approaches already in place before developing a national strategy. France is the frontrunner in implementing rare disease policies as well as the member state with the highest number of marketed orphan drugs. Over the past five years, most member states finalised their national plans with a peak in publications late 2013. Plans include similar methods on increasing patient access such as off-label use, compassionate drug use and utilising cross-border health care. Member states with a decentralised market access model (e.g., Spain and Italy) commonly use national funds and decision-making to provide equity in treatment levels across the nation for rare diseases. There are few orphan drug specific pricing policies; however special reimbursement criteria are common especially in countries with cost-effectiveness criteria. **CONCLUSIONS:** Increasing patient access to orphan drugs has been a focus point in the national plans for rare diseases. Congruencies in methods will aid the EU's ambition to align policies at European level. However the implementation phase has only recently been initiated for most plans and actual policies are yet to be developed. As member states such as France are introducing cost-effectiveness criteria in their health technology assessments, one can expect that tailored criteria need to be developed for orphan drug assessments.

PHP82
MEASURING THE EFFICIENCY OF HUNGARIAN HOSPITALS BY DATA ENVELOPMENT ANALYSIS
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OBJECTIVES: Hospitals are important cost elements of the Hungarian health care system. During the past decade, several health care reform affected the number of hospital beds in Hungary. The aim of our research is to analyse the efficiency of the Hungarian acute inpatient-care system. **METHODS:** Data derived from the Hungarian nationwide health insurance database. We analyzed the technical- (TE) and scale efficiency (SE) of the Hungarian acute inpatient-care system (2003, 2006, 2010). The number of hospitals included into the study was 133 in 2003,125 in 2006 and 93 in 2010. We chose four inputs and two outputs: the number of active hospital beds, the number of discharged patients, the number of one-day cases, completed days of nursing (inputs), average length of stay, DRG cost weights (outputs). The method we used for our calculations was Data Envelopment Analysis. **RESULTS:** In 2003 both the technical and scale efficiency were high (TE: 96.9%; SE: 92.9%). To 2006 the situation deteriorated by some degree (TE: 96.6%; SE: 80.3%). By 2010 technical efficiency still did not show improvement (TE: 94.0%), but scale efficiency increased (SE: 88.2%). Usually the hospitals with higher number of beds are more efficient than the smaller units. **CONCLUSIONS:** The effects of the performance volume limit did not improve the two values; however, the capacity decrease of 2007 did improve the scale efficiency to some extent. The Hungarian health care system needs to reduce the numbers of hospitals and rethink their functions, but needs to improve the size of them.

HEALTH CARE USE & POLICY STUDIES – Formulary Development

PHP83
EXPERIENCES WITH PRICE COMPETITION OF BIOSIMILAR DRUGS IN HUNGARY
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OBJECTIVES: The aim of our study is to analyse the biosimilar bids of the Hungarian National Health Insurance Fund Administration in case of colony-stimulating factor and erythropoietin products. **METHODS:** Data derived from the nationwide pharmaceutical database of Hungarian National Health Insurance Fund Administration. We analysed how the number of patients treated by colony-stimulating factor and erythropoietin products changed before (01.07.2011.-30.06.2012.) and after (01.07.2012.-30.06.2013.) the first biosimilar bid performed in March 2012 in Hungary. **RESULTS:** In the 12 months before biosimilar bid 4167 patients received erythropoietin treatment, while in the first 12 months after the bid 3647 patients, resulting in a 12.5% decline. In the 12 months before biosimilar bid 13974 patients received colony-stimulating factor treatment, while in the first 12 months after the bid 13352 patients, resulting in a 4.5% decline. **CONCLUSIONS:** The analyses of the Hungarian price competition bid of biosimilar products showed a minimal decline in the number of patients under treatment by both colony-stimulating factor and erythropoietin products while the health insurance reimbursement of these drugs significantly decreased.

PHP84
IMPACT OF PRIOR AUTHORIZATION RESTRICTIONS ON RESOURCE UTILIZATION AND COSTS IN US HEALTH PLANS: A REVIEW OF LITERATURE
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OBJECTIVES: Prior authorization (PA) restrictions have been implemented by US health plans in an effort to ensure safety, manage appropriate utilization and control costs. A review of published peer-reviewed literature was conducted to evaluate the impact of such PA restrictions on resource utilization and costs. **METHODS:** A targeted review of literature was conducted in Medline from 2009 onwards using search terms including "prior authorization", "resource", "use", "utilization", "cost", "impact", "economic". Review articles, non-English language studies, non-US studies, kins, and studies evaluating the effectiveness of formulary policies of which PA may be a component were excluded. Impact of PA policies on health care utilization and costs was qualitatively assessed. **RESULTS:** Fourteen studies were identified which met our inclusion criteria. Majority (57%) of the studies were conducted on Medicaid plans (Medicaid: 8, commercial: 4, Medicare: 1, not clear: 1). Majority (57%) of studies evaluated the impact of mental health medications (anti-convulsants, anti-depressants bipolar medications, antipsychotics), two studies were conducted on anti-diabetics, one on a multiple sclerosis drug, one for a lipid-lowering drug, one on an anti-hypertensive and one on a vaccine. Four studies were industry-sponsored. 12 studies were retrospective data analyses and only 2 studies were decision-analytic models. Overall, the trend showed that PA restrictions were effective in reducing pharmacy utilization and health care costs, but few studies also raised concerns on patient safety and quality of care outcomes due to PA policies. **CONCLUSIONS:** Although PA restrictions may result in cost-savings, patient safety and quality of life concerns must also be evaluated while imposing these restrictions. Rigorously designed studies including assesment of PA administration costs as well as indirect costs due to lost productivity should be conducted to better assess the overall economic impact of such restrictions.

PHP86
DO NICE DECISIONS AFFECT DECISIONS IN OTHER COUNTRIES?
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OBJECTIVES: The objective is to test the hypothesis whether NICE recommendations on the use of a new drug affect recommendations from other bodies in countries outside England and Wales. To our knowledge, this is the first attempt to approach this topic quantitatively. Therefore, a sub-objective is to determine the feasibility of gathering a high quality database with sufficient number of observations to test our hypothesis. **METHODS:** A basket of 29 drug/indication pairs and a group of 15 countries were included (Australia, Canada, Denmark, France, Italy, Korea, The Netherlands, New Zealand, Poland, Portugal, Spain, Bosnia, Ecuador, Egypt and Ghana). Information regarding NICE HTA recommendations was extracted from NICE's website and HTAinSite. com. Moreover, an online-survey of key opinion leaders was carried out to collect information regarding the HTA decision in 10 countries. For the remaining five countries, we used the information from their official webpages. A descriptive analysis was conducted, including an examination of the position of each decision of NICE in comparison with that of other HTA agencies in the timeline of decision making about the 29 medicines. **RESULTS:** There is a lack of comparability between the publically available information. The findings suggest that after the publication of a NICE appraisal there is a higher probability that an HTA is undertaken for the same drug in other countries. Furthermore, when NICE has published a negative decision, the tendency of not recommending the drug by another HTA body is much larger after than before NICE's decision. **CONCLUSIONS:** Issues encountered in the collection of information made it difficult to quantify the effect of NICE recommendations on HTA decisions in other countries. The results suggest that the selected agencies are considering NICE decisions as a factor for rejecting or restricting the use of drugs which in other case would be recommended or reimbursed.

HEALTH CARE USE & POLICY STUDIES – Health Care Costs & Management

PHP87
COMPLICATIONS, COSTS AND RESOURCE UTILIZATION IN REAL-WORLD COMPLEX ABDOMINAL WALL RECONSTRUCTION PATIENTS
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OBJECTIVES: Little information is available on complication-related resource utilization and costs over time in patients with complex abdominal wall reconstruction. Under pay-for-performance requirements financial decision-makers need better information to allocate health care resources and budget dollars. This analysis reports complication-related resource utilization and costs over time in a real-world patient population undergoing complex abdominal wall reconstruction. **METHODS:** A cohort of patients with complex abdominal wall reconstructions during inpatient stays between1/1/08 and 6/30/11 (Index event) were followed for 12 months. Related complications, returns for facility-based care and related costs were evaluated for 30-60-90-365 days after discharge. Insurance claims from the Truven Health

Analytics MarketScan® database, inpatient costs from the Healthcare Cost and Utilization Project (HCUP) and costs reported for Ambulatory Patient Classifications (APC) were used to estimate costs from the hospital perspective. **RESULTS:** 13,463 patients were evaluated. Rates of patients experiencing any complication were 17.3% within 30 days, 11.0% within 31-60 days, 8.1% within 61-90 days, and 21.4% within 91 days – 12 months. In total, 37.8% of patients experienced a complication over 12 months. The most frequent complications over 12 months were infection (16.6%), bowel obstruction/ other GI complication (12.6%), skin/connective tissue-related complications (10.7%), and wound complications (8.1%). Complication-related cost over time followed a similar trend; average 12 month cost for patients experiencing an infection was $20,679, $21,558 for bowel-related complications, $14,950 for skin/ connective tissue related complications and $19,230 for wound complications. The index event average length of stay for patients with no complications and patients with complications was 3.9 (sd 4.4) and 17.0 (sd 19.6), respectively; p< 0.0001. **CONCLUSIONS:** Health care resource utilization, costs and complications for complex abdominal wall reconstruction patients increase over time. Resource utilization is exacerbated when complications occur. Further study may be required to validate these findings.

PHP88

THE GROWING FINANCIAL AND QUALITY-OF-LIFE BURDEN ASSOCIATED WITH ATRIAL FIBRILLATION (AF), DIABETES, CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) AND ASTHMA IN IRELAND

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Many people in Ireland suffer from chronic diseases including AF, diabetes, COPD and asthma. With the prevalence of these conditions expected to rise, general wellbeing and quality-of-life will be increasingly affected. Chronic conditions also account for most of the health care resources used, and represent a significant economic burden for Ireland in the future. **OBJECTIVES:** Estimate the number of preventable disease associated events and costs associated with poor management of patients with AF, diabetes, COPD and asthma. **METHODS:** For each province, calculate the number of patients diagnosed with AF, diabetes, COPD or asthma, based on disease prevalence and 2011 Census data. Estimate the number of patients not achieving target management of their condition and the associated number of preventable events and total costs, using publically available information. **RESULTS:** Of the approximately 59,647 patients diagnosed with AF in Ireland, 23,561 patients are not receiving appropriate anticoagulation treatment. This results in 531 patients experiencing an avoidable stroke each year, costing the health care system around €9.3m. Amongst the 238,589 patients diagnosed with type 2 diabetes, 77% will not achieve a target HbA1c of 6.5% or less, resulting in an expense of €886m and 12,493 avoidable deaths each year. In addition, 30% of diagnosed COPD patients, and as many as 60% of asthma patients, are not managing their condition effectively, costing the Irish health care system €899m per year in hospital admission costs alone. **CONCLUSIONS:** Much of the chronic disease burden is caused by preventable risk factors. This is intended as a key policy lever, to elevate chronic diseases on the health agenda of key policymakers, providing them with better evidence about risk factor control, and persuading them of the need for health systems change. Unless steps are taken now to effectively deal with chronic diseases, Ireland is headed for serious financial and quality-of-life crises.

PHP89

WHAT IS WORKING WELL IN LOUISIANA FOR US EMPLOYERS: A DESCRIPTIVE ANALYSIS OF EMPLOYERS ACTIVELY ENGAGED IN PROMOTING EMPLOYEE HEALTH

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OBJECTIVES: As health care costs continue to rise, employers seek options to improve the health and wellness of their employees. This study examined the practices of employers that are actively engaged in promoting employee health. **METHODS:** A study of 18 employers who applied for the Working Well award provided by the Louisiana Business Group on Health in 2013, recognizing employers who are exemplar in their employee health and wellness activities. Applicants completed a survey detailing business policies and programs intended to promote wellness. De-identified data derive from 2013 applications. **RESULTS:** Over half of the companies had fewer than 500 employees (55.6%), 4 had more than 2000. Health plan coverage was fully (8; 44.4%) or self (7; 38.9%) funded. Almost half implemented wellness programs within the last 3 years (44.4%), whereas 4 (22.2%) had programs more than 10 years; all were company funded. Annual spend on wellness was split across participating employers with 55.6% spending < $50,000 and the rest > $50,000 (8; 44.4%). Rationale most cited for programs: improve employee wellbeing (18; 100%), contain health care costs (17; 94.4%), increase productivity (13; 72.2%), and reduce absenteeism (12; 66.7%). Most employers incentivized program participation (16; 88.9%) through premium reductions (8; 44.4%), cash (8; 44.4%), or PTO (3; 16.7%). Information most reported to help with wellness planning were health risk assessments (HRAs) (15; 83.3%), health care claims and utilization (14; 77.8%), and worker's compensation claims (8; 44.4%). **CONCLUSIONS:** In the US, employers are responsible for a significant portion of health care spend. Though a small self-selected sample, this analysis reveals that employers actively engaging their employees, using prevention and incentives to promote wellness are a more recent occurrence. The trend suggests increasing awareness that efforts to improve employee health and wellness can help attract and retain staff, as well as potentially reducing health care costs.

PHP90

A QUANTIFICATION OF EXPENDITURE ON HOSPITAL STAYS IN 5 EUROPEAN COUNTRIES

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OBJECTIVES: Throughout Europe, economic conditions are forcing health care systems to reduce costs. One primary driver of health care costs is hospital length of stay (LOS). This study sought to determine which European countries have been most successful at reducing their average LOS for five inpatient admissions. This research also sought to quantify the potential savings for countries that have not been as successful in reducing their average LOS if they can align with their peers. **METHODS:** A review of hospital LOS and cost per day of hospital stay data was conducted in five European countries (France, Germany, Italy, Spain and the United Kingdom), utilizing data published by the World Health Organization (WHO). Additionally, hospital payment systems were assessed in each country through published research to understand systemic motivations of health care providers with regards to LOS. **RESULTS:** Substantial variability exists in average LOS for the studied admissions. The greatest variability was in breast cancer, with average stays ranging from 4.36 days in the UK to 11.01 days in Germany. The average LOS for three admissions (single spontaneous delivery, cataracts, and pneumonia) are relatively similar across countries. However, the average LOS in Germany for malignant neoplasm of the breast and acute myocardial infarction are significantly higher than the other four countries. There is little variability, however, in average costs per bed-day in the target countries. A review of payment mechanisms for inpatient stays revealed that hospitals are financially incentivized to minimize LOS in all five countries. **CONCLUSIONS:** Additional research is needed to understand the reason for the discrepancy between German stays and the other four countries. While there are many potential reasons for the differences, should Germany align their average LOS for malignant neoplasm of the breast and acute myocardial infarction with the other four countries, they could save €744 million per year.

PHP91

R&D INVESTMENTS, INTANGIBLE CAPITAL AND PROFITABILITY IN THE PHARMACEUTICAL INDUSTRY

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OBJECTIVES: The pharmaceutical industry is in the center of political debate due to their high profitability. In this study, we argue that abnormal profitability in the pharmaceutical industry is a kind of optical illusion created by accounting standards and their influence on reported accounting profit and book equity – the two components of ROE. The internationally accepted accounting frameworks either do not permit capitalizing R&D investments as U. S. GAAP or limit capitalizing R&D investments as International Financial Reporting Standards (IFRS) applicable in the E. U. and most countries. This treatment understates assets and equity, and can overstate reported profit because relevant cost components (amortization of R&D) are not deducted from revenues they generate. We empirically aim to estimate the magnitude of this accounting bias. **METHODS:** Based on international financial data of 413 pharmaceutical firms between 1972 and 2012, we assessed the "true" profitability of pharmaceutical firms by capitalizing R&D and amortizing it over the shelf-life of developed products. We use three amortization approaches (linear amortization, declining-balance amortization and amortization based on the empirical amortization rates). **RESULTS:** Corrected profit and equity figures lead to substantially lower long-term profitability of pharmaceutical firms. Over the three proposed amortization approaches, the corrected ROE of 14.1% is comparable to profitability reported by U. S. firms from other industries (ROE = 11.1%). Non-U. S. pharmaceutical firms also have an adjusted ROE that is comparable to firms from other industries (7.6% pharma vs. 9.6% non-pharma). **CONCLUSIONS:** The policy implication of our study is that price regulation or rate of return regulation in the pharmaceutical market should be reviewed and applied with caution when it is solely motivated by the allegedly high profitability of the industry. This is especially true since such a policy also impedes R&D investments and innovation in the long run because profits serve as a major source of R&D investments.

PHP92

DO SPECIALTY DRUGS OFFER GREATER VALUE FOR MONEY THAN TRADITIONAL DRUGS?

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OBJECTIVES: Specialty drugs are often many times more expensive than traditional drugs, raising questions of affordability, and whether their clinical benefits are worth their added costs. The objective of this study was to consider new molecular entities (NME) (i. e., drugs that had not previously been approved by the FDA or marketed in the US) approved by the FDA from 1999 through 2011 to compare the value of specialty and traditional drugs. **METHODS:** We searched the FDA website to identify all NMEs approved from 1999 through 2011. We identified published estimates of additional health gains (measured in quality adjusted life years (QALYs)) and costs (drug costs, hospitalization costs, etc) associated with specialty drugs compared to existing standard of care at their time of approval, and compared findings with traditional drugs. We compared incremental QALY gains, incremental costs, and the incremental cost-effectiveness ratio, for specialty vs. traditional drugs using a Mann Whitney U test. **RESULTS:** We identified relevant estimates of additional health gains and costs for 101 (36%) of NMEs, including 59 specialty drugs. We found specialty drugs offered greater QALY gains than traditional drugs (0.19 vs. 0.01, p<0.01), but were associated with greater additional costs ($10,460 vs. $906, p<0.01). We found the cost-effectiveness of the different drug types to be broadly similar (p=0.58). **CONCLUSIONS:** This research suggests specialty drugs may offer greater health benefits over existing care than traditional drugs, and despite specialty drugs being associated with greater costs, specialty and traditional drugs were comparable in terms of cost-effectiveness. As payers search for ways to control health care costs it is important to recognize the relative benefits as well as the costs of specialty drugs, and to mitigate inappropriate use and waste to ensure that effective treatments are affordable to patients.